

CHANGE, CHALLENGES, AND OPPORTUNITIES FOR WILD FISHERIES


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Conference on Marine Aquaculture:
Effects on the West Coast and
Alaska Fishing Industry



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 <p>UA Understanding Alaska</p>	<p>Understanding Alaska (UA) is a special series of ISER research studies examining Alaska economic development issues. The studies are funded by the University of Alaska Foundation. This and other UA reports are on the project web site—www.alaskaneconomy.uaa.alaska.edu</p>
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Conclusions

- The global seafood industry is in a period of rapid and profound change which is affecting every part of the industry.
- The key causes of change are the growth of aquaculture and globalization of the world economy
- These changes are leading to increased pressure throughout the seafood industry to respond to market demands and increase efficiency.
- Wild fisheries face significant inherent challenges in competing with aquaculture in an increasingly globalized economy.
- Aquaculture has far-reaching effects on markets for wild fisheries. Many of these effects are negative, but some are positive.
- To survive and prosper, people who depend on wild fisheries need to:
 - Accept reality and responsibility
 - Get smart
 - Address self-inflicted challenges
 - Build on the advantages of wild fisheries
 - Work with aquaculture towards common goals

A personal note . . .

- My remarks are primarily directed to people in my state—Alaska—and others who depend upon wild fisheries
- I see rapid and profound change in the seafood industry brought on by the growth of aquaculture and globalization of the world economy. I've seen these changes coming for a long time and I have talked and written about them for a long time.
- These changes have brought a lot of pain to people who depend on wild fisheries.
- I'm not advocating or welcoming aquaculture or globalization or the change or pain that they have brought to wild fisheries.
- I'm interested in how people who depend on wild fisheries can build a healthy, profitable industry.
- I think the starting point towards that goal is understanding the reality of the seafood industry and how it is changing.
- I also think that there are significant opportunities for Alaska and other parts of America and Canada in aquaculture. But that's a different issue and that's not the point of my remarks today.

Outline of Presentation

1. The Aquaculture Revolution
2. The Globalization Revolution
3. Inherent Challenges for Wild Fisheries in Competing with Aquaculture
4. Effects of Aquaculture on Markets for Wild Fisheries
5. How Can Wild Fisheries Respond to Aquaculture?

1. The Aquaculture Revolution



Aquaculture accounts for a large and growing share of world seafood production.

**World Aquaculture and Capture Fisheries Production,
as Reported by FAO (millions of metric tons)**

	1990	2000	% Change
Countries other than China			
Aquaculture	8.9	13.3	49%
Capture	81.0	80.6	0%
Total	89.9	93.9	
Aquaculture share	10%	14%	
China			
Aquaculture	8.0	32.4	308%
Capture	6.7	17.2	156%
Total	14.7	49.6	
Aquaculture share	54%	65%	

*49% growth
between
1990 and
2000*

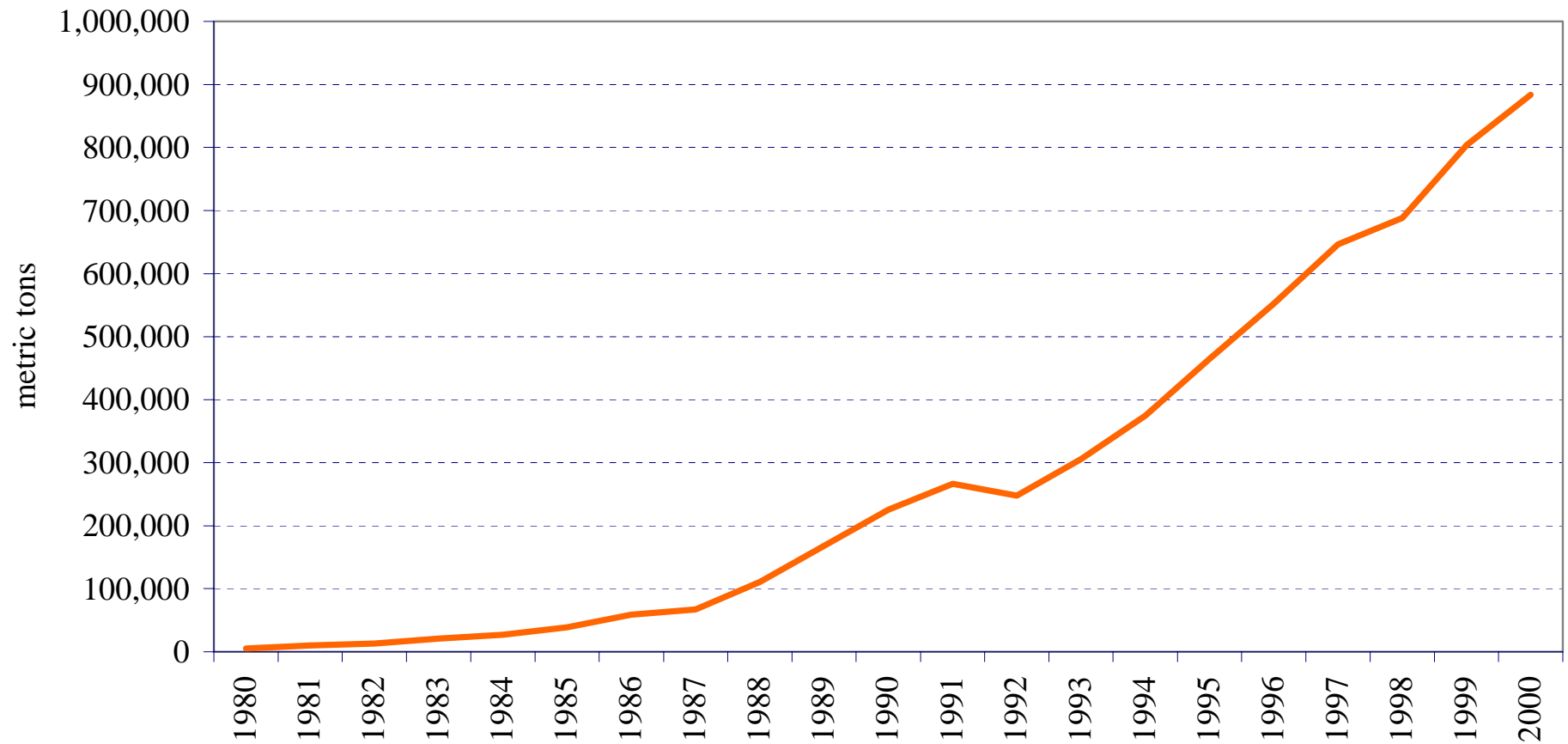
14% of world supply

Source: FAO, Fishstat+ Database, 2002.

There is some uncertainty over the reliability of Chinese data for aquaculture and capture production.

Farmed salmon is only one of many species for which aquaculture production has grown very rapidly.

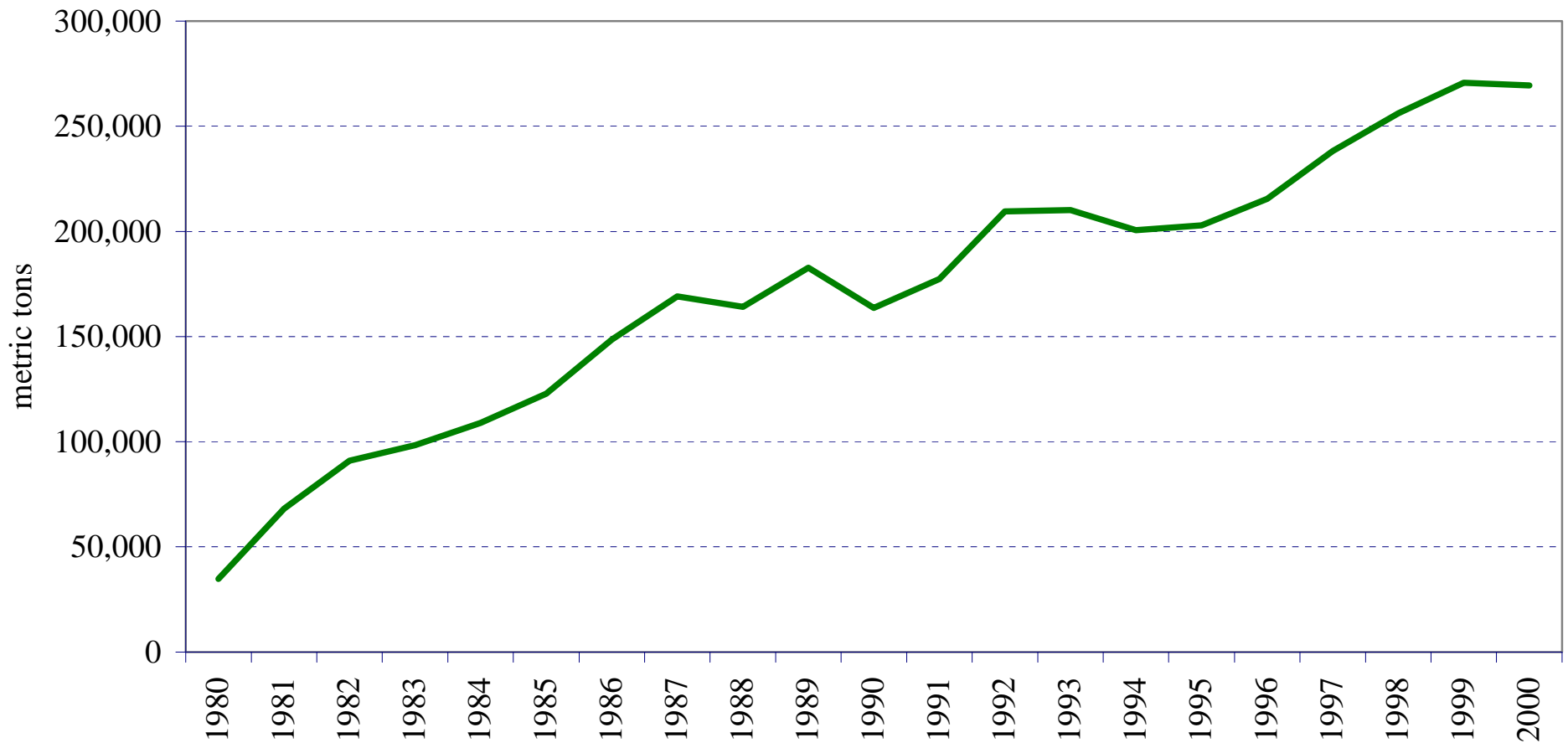
World Aquaculture Production of Atlantic Salmon



Source: FAO Fishstat+ database. Note: Graph excludes reported Chinese production

Some other species for which farmed production has grown very rapidly include catfish . . .

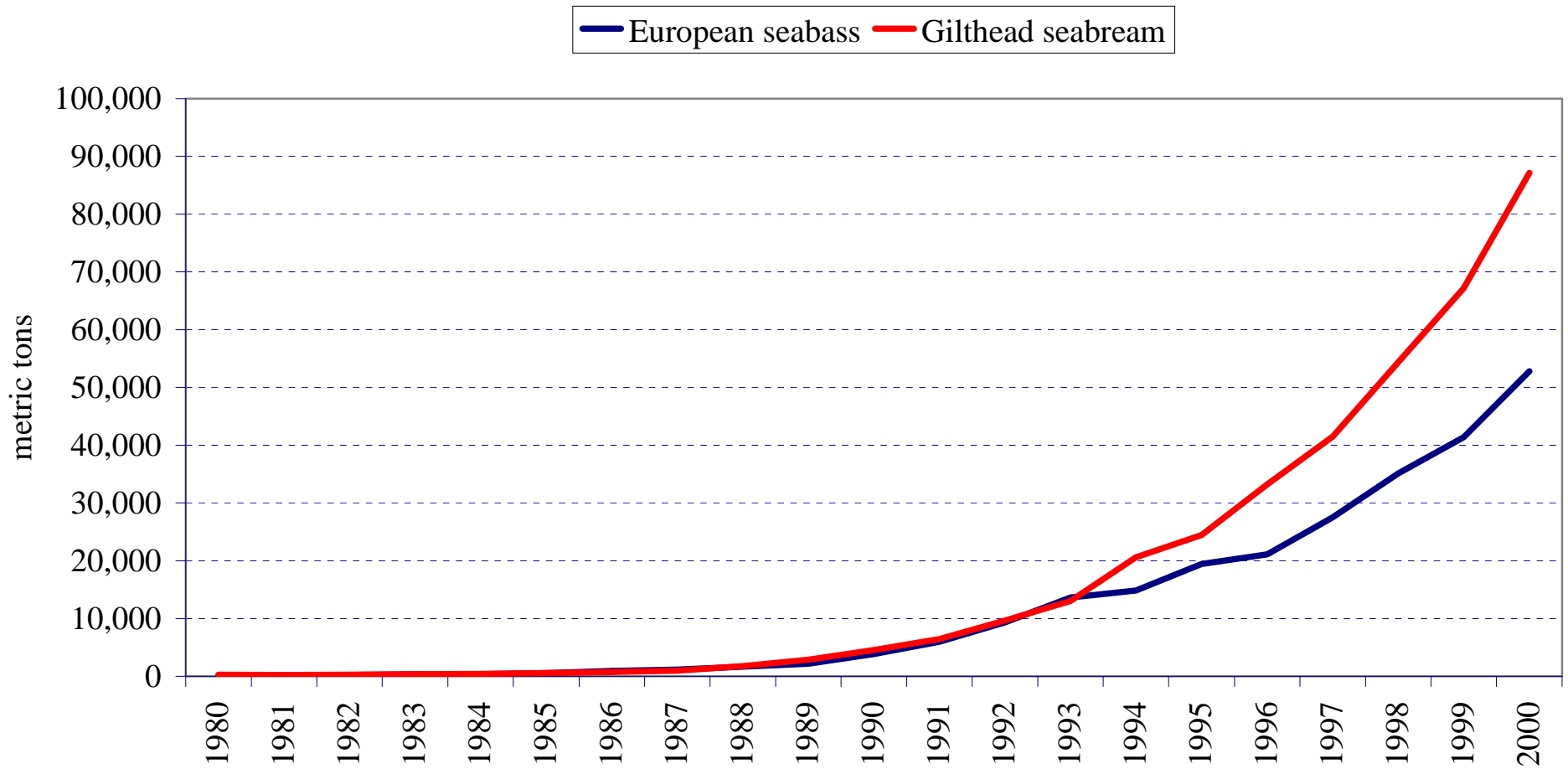
World Aquaculture Production of Channel Catfish



Source: FAO Fishstat+ database. Note: Graph excludes reported Chinese production

Seabass and Seabream . . .

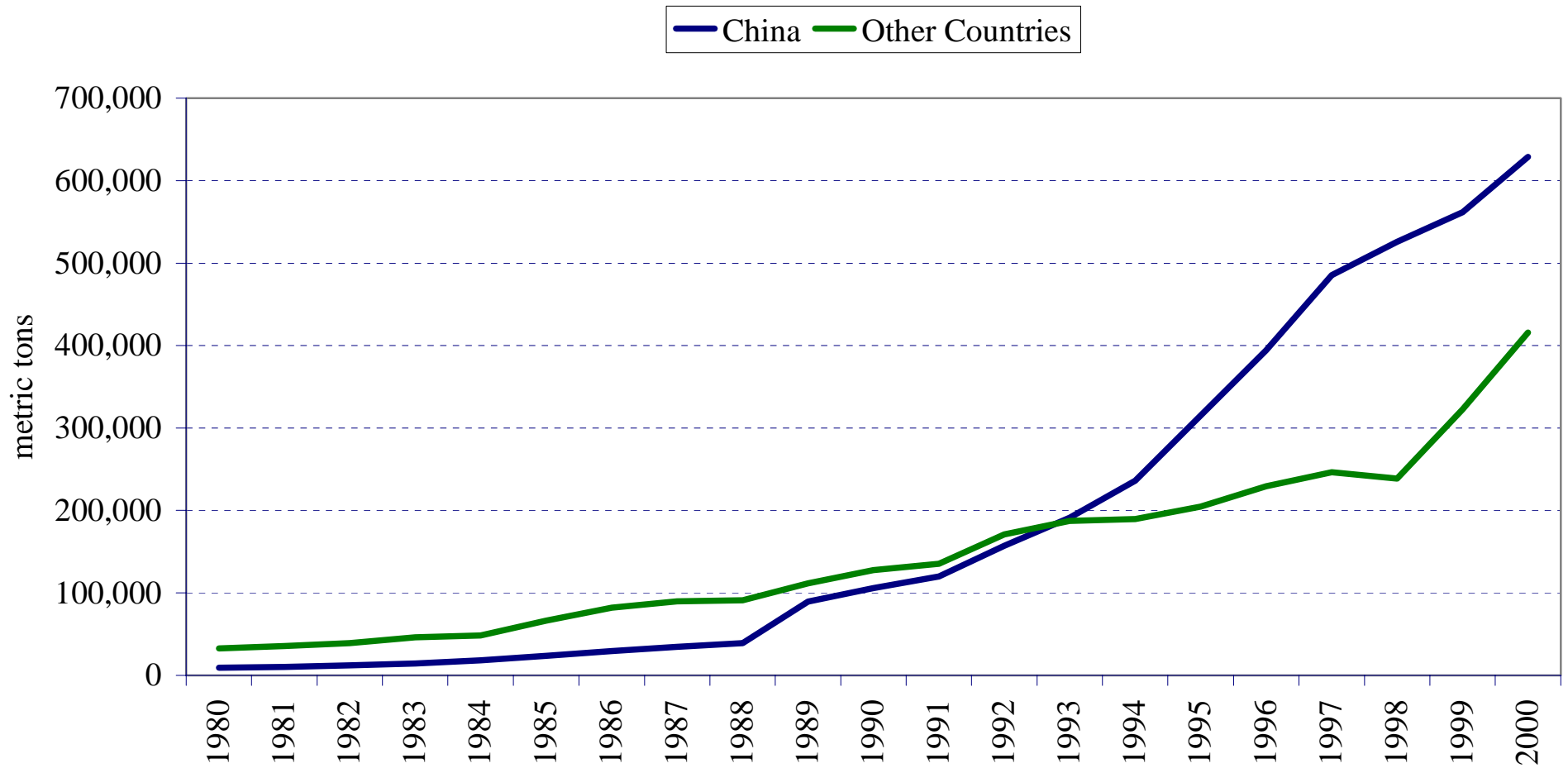
World Aquaculture Production of Seabass and Seabream



Source: FAO Fishstat+ database. Note: Graph excludes reported Chinese production

and Tilapia . . .

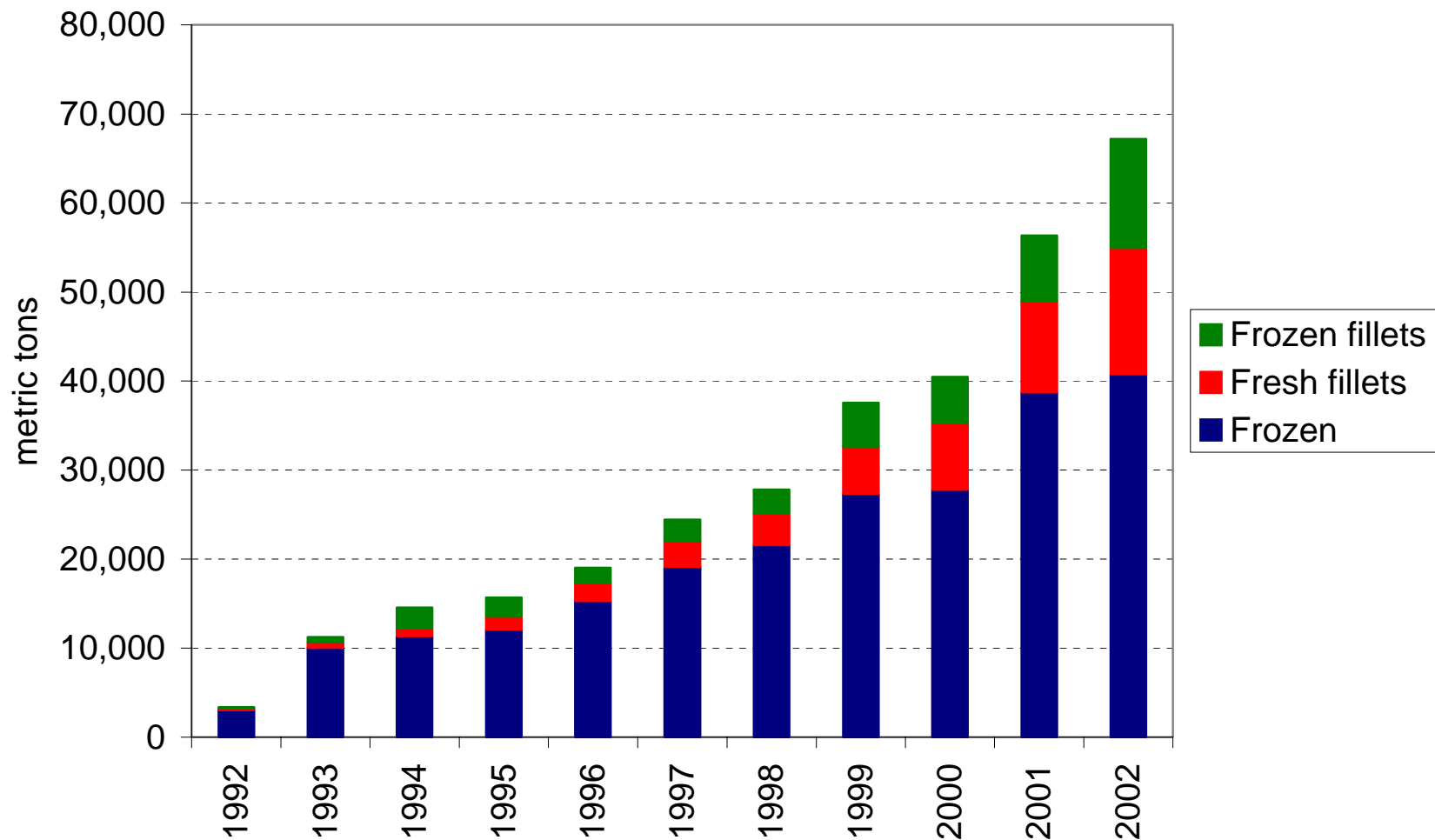
World Aquaculture Production of Nile Tilapia



Source: FAO Fishstat+ database

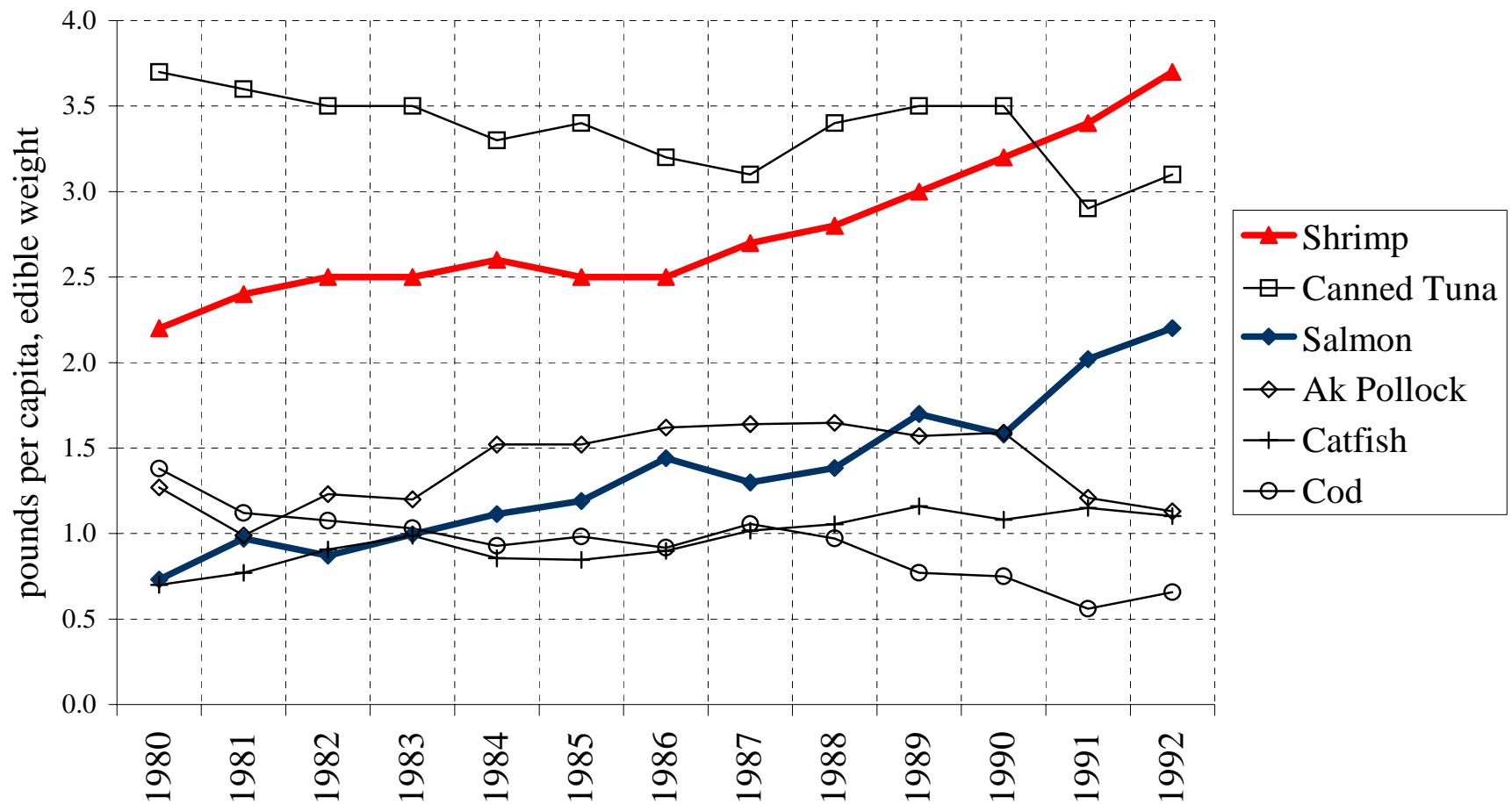
Farmed tilapia is one of the fastest growing U.S. seafood imports
(along with farmed salmon).

United States Imports of Tilapia



Farmed **shrimp** and farmed **salmon** are the fastest growing components of U.S. seafood consumption and rank first and third in total consumption.

**Estimated United States Per Capita Fish Consumption: Top Six Species
(edible weight)**



Source: National Fisheries Institute Estimates.

There is very significant potential for growth in aquaculture production.

- The global aquaculture industry has very significant resources to invest in research, production and marketing
- Technological innovation is occurring rapidly.
- Once technological hurdles are overcome, farming of new species can expand at a very rapid rate.

There are no obvious limits to growth in aquaculture production.

- Feed
 - Fish farmers can substitute vegetable-based feeds for fish-based feeds. This is already happening for salmon.
 - Many aquaculture species, such as catfish and tilapia, are grown almost entirely on vegetable-based feeds.
- Environmental Effects
 - Environmental effects can be reduced through regulation and changes in techniques and locations
- Market Acceptance
 - Rapid growth in consumption proves that buyers and consumers will accept farmed products

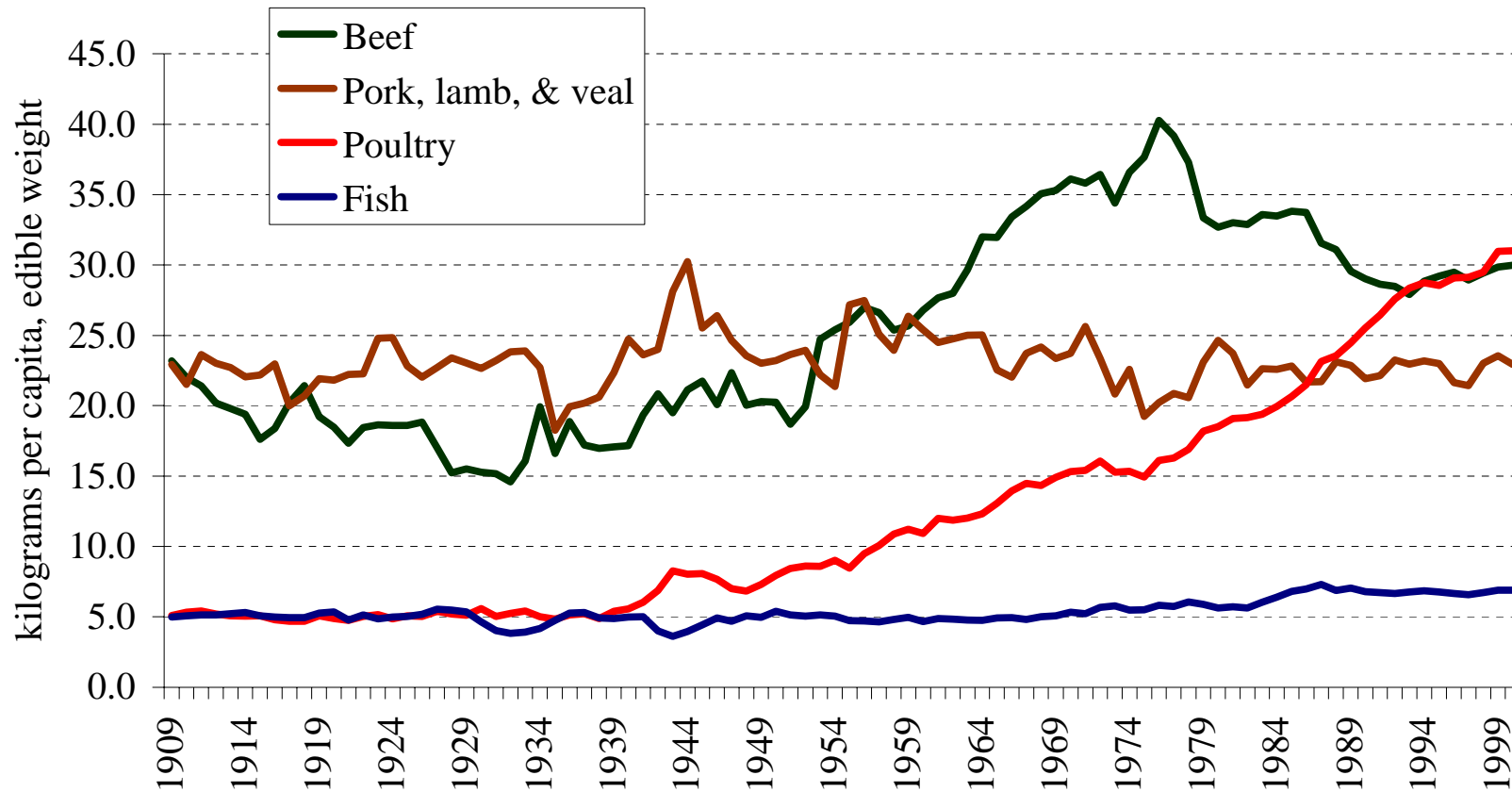
The past isn't necessarily a guide to the future.

- Just because farming of a species isn't profitable now doesn't mean it won't be in the future
- Just because production of a species isn't significant now doesn't mean it won't be in the future.
- Just because consumers don't eat a fish today doesn't mean they won't in the future.
- Tomorrow's major aquaculture species may not be the same as those of today.

*The past was not a guide to the future
for farmed salmon, catfish or tilapia.*

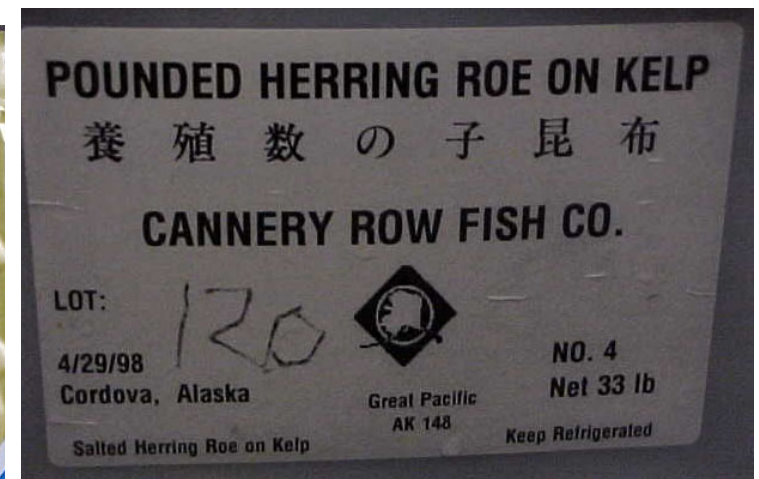
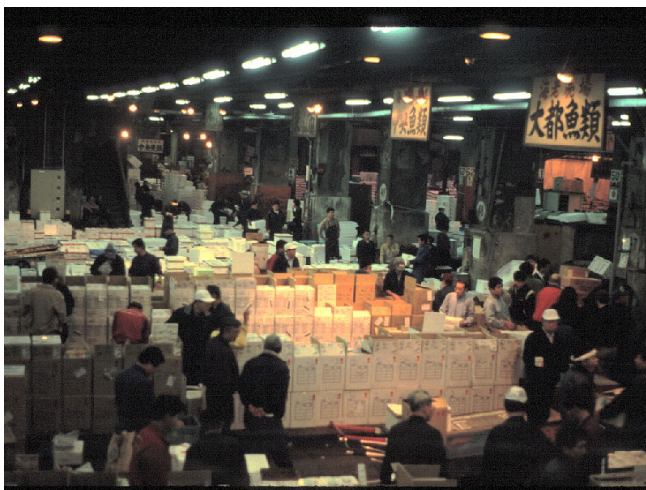
Unlike wild fisheries, there is potential for continuing demand-driven growth in aquaculture production. The historical experience of poultry may be a better indicator of the potential for aquaculture than that of wild-caught fish.

U.S. Per Capita Consumption of Meat, Poultry and Fish
(edible weight)



Source: USDA Economic Research Service.

2. The Globalization Revolution



Aquaculture is not the only factor causing change in the seafood industry.

The seafood industry is also affected by far-reaching changes which are occurring in the world economy, which are affecting all industries.

The changes are frequently referred to as “globalization.”

We cannot understand current trends in aquaculture, or the effects of aquaculture, without thinking about globalization.

Globalization is contributing to the rapid growth of aquaculture.

Globalization magnifies the effects of aquaculture on markets for wild fisheries.

“Globalization” includes . . .

- Increasingly reliance on markets
- Reduction in trade barriers
- Technological revolution in communications and transportation
- World economic integration in markets for resources, goods, services, labor and capital
- Movement of production to low-cost producers
- Consolidation and integration resulting in larger, more powerful firms operating in many countries
- Growing consumer incomes in developed and developing countries
- Increasing consumer expectations for quality, convenience, variety and lower prices

Globalization is transforming seafood processing, distribution, and retailing.

- Shift in labor-intensive seafood processing to countries with low labor costs
- Rapid expansion of seafood trade
- Increasing consolidation and market power in the retail and food service industry
- Restructuring of seafood distribution networks
- Increasing pressure on seafood suppliers to lower costs
- International standards for food handling and safety

In the United States, Europe and Japan, large retail and food-service buyers are dominating more and more of the seafood market. These buyers want:

- Consistent and reliable supply of large volumes
- Low, stable and competitive prices
- Consistent quality
- Traceability
- Products which consumers view as
 - Safe
 - Healthy
 - Convenient
 - Environmentally and socially responsible

Increasingly, for the large retail and food-service buyers who account for more and more of total seafood demand, it is not enough if your product is the best tasting fish in the world. They won't want to buy it unless:

- You can supply it in large and consistent volumes of consistent quality
- You can supply it to them at a stable price which matches the prices offered by your competitors (even if your competitors' fish may not taste as good)
- You can meet increasingly strict standards for traceability and safety

3. Inherent Challenges for Wild Fisheries in Competing with Aquaculture

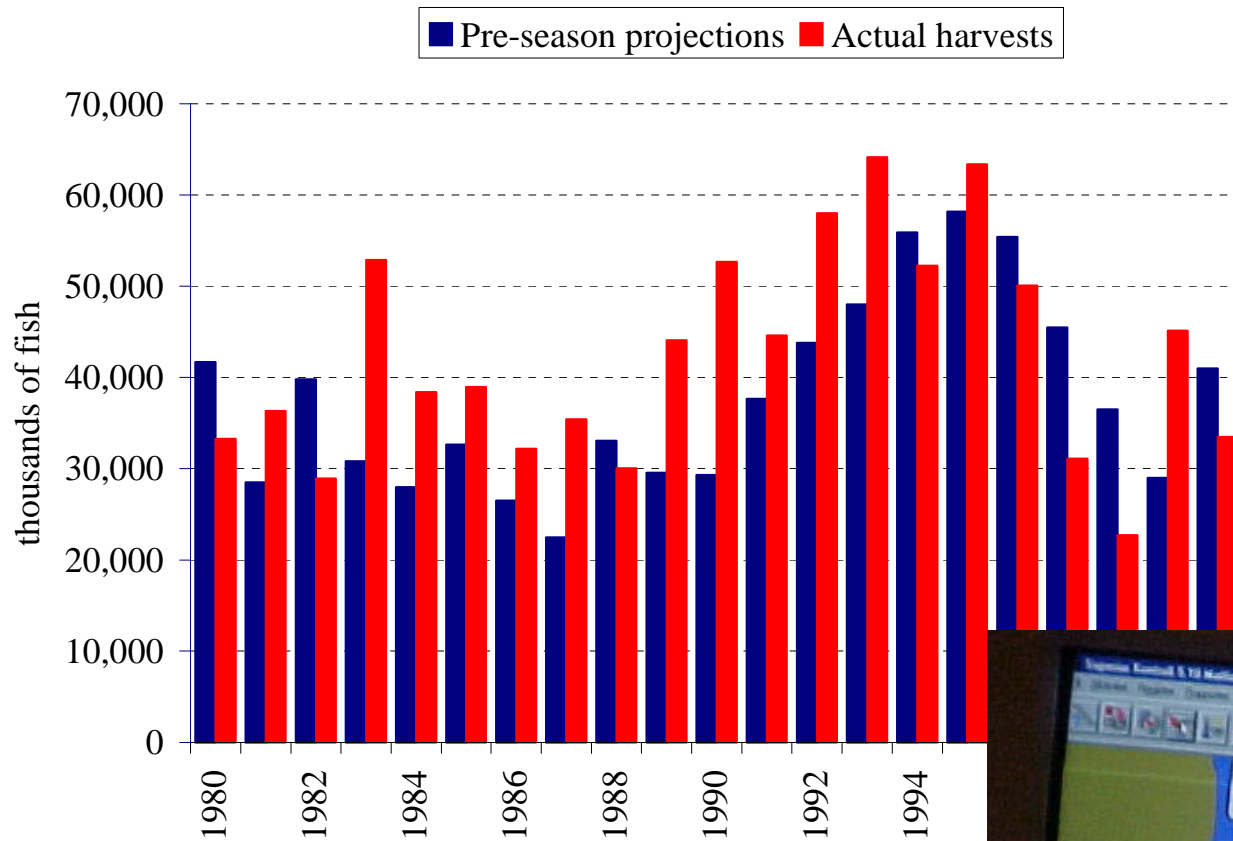


Wild fisheries face important inherent challenges.

- Production is variable.
- Production is uncertain.
- Production is seasonal.
- Production cannot increase significantly.
- Production can only occur where there are wild resources, regardless of other factors affecting cost

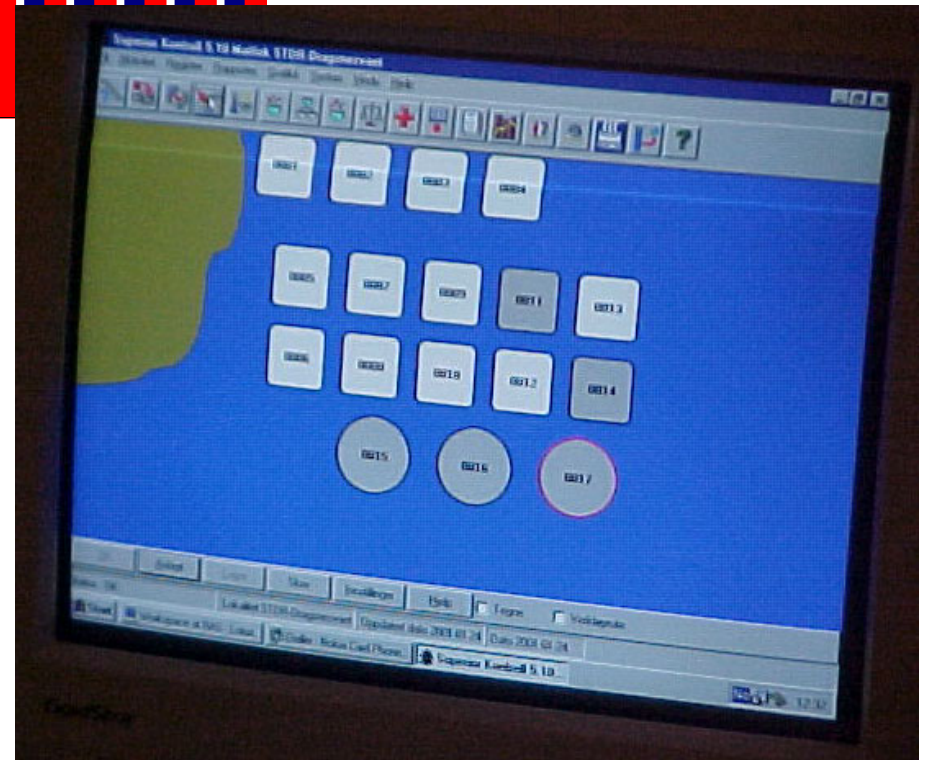
Inconsistent and unpredictable supply makes it more difficult for wild fisheries producers than for aquaculture producers to meet buyers' supply needs and to plan for marketing.

Inherent challenge	Wild Salmon	Farmed Salmon
Production Volume	Wild salmon production is inconsistent from year to year, difficult to predict, and cannot expand.	Salmon farmers can accurately forecast production and guarantee supply commitments. Farmers can expand production to meet growing demand.



Actual Alaska sockeye salmon harvests typically differ from pre-season projections by 30%.

This computer at a Norwegian salmon farm can tell the producer exactly how many fish of what size are in each pen (and in the pens of all the farms owned by this company on three continents)



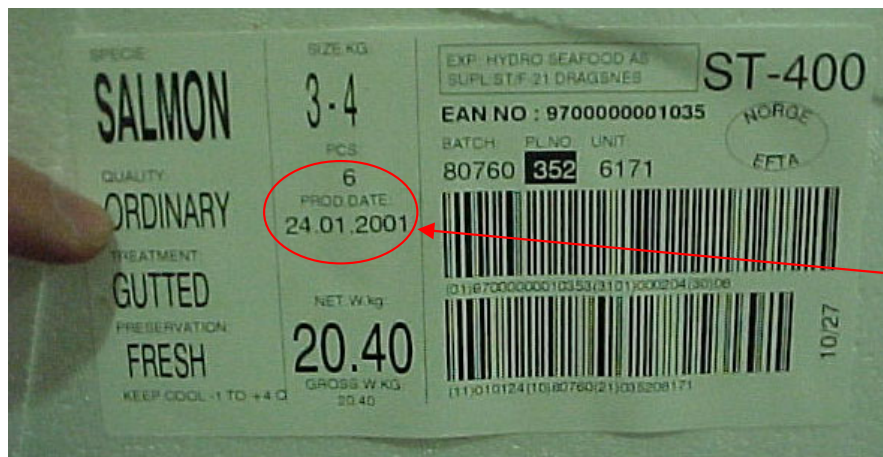
The seasonality of many wild fisheries increases production costs relative to aquaculture, and makes it relatively more difficult to market wild fish.

Inherent challenge	Wild Salmon	Farmed Salmon
Production timing	Wild salmon can only be harvested during a short summer run.	Farmed salmon production can occur year-round.



← The fact that many Alaska fishing boats and processing plants are idle for much of the year is a huge cost disadvantage.

Because it processes farmed salmon year round, this relatively small British Columbia facility processes as much salmon as the largest Alaska facilities. →



→ Norwegian salmon processed in winter

Because it can choose when to process fish, the BC farmed salmon processor doesn't process salmon until it already has a buyer. The fish are processed to that buyer's specifications.





Very large harvests in short time periods makes canning the only practical option in some wild salmon fisheries.

Steady production volumes and low-cost labor allows Chilean salmon farmers to produce fresh pinbone-out fillets



Inherent challenge	Wild Salmon	Farmed Salmon
Variation in fish size	There is wide variation in the size and quality of individual wild salmon	Farmed salmon is consistent in size and quality.

Grades at a
southeast
Alaska
processing
plant

<u>BRITE KINGS</u> H/OFF -10 MRK 10-15 LRK 15-18 LRK 18-25 XLRK 25+ XLRK	<u>BLUSH KINGS</u> H/OFF -10 MRK 10-18 LRK 18+ XLRK	<u>DARK RED & WHITE KINGS</u> H/OFF +10 LRK -10 MRK			
<u>BRITE WHITE KINGS</u> H/OFF -10 MRK 10-18 LRK +18 XLRK		<u>ALL STD KINGS</u> NO DARK STD -10 MRK +10 LRK			
<u>BLUSH WHITE</u> H/OFF KINGS -10 MRK 10-18 LRK +18 XLRK	<u>CONO</u> H/OFF 2-9 9-6 6-9 9-12 +12	<u>CRAB</u> H/OFF 2-4 4-6 6-9 9+ <small>DATE TO YOUNG</small>	<u>SALMON</u> H/OFF 2-4 4-6 6-9 9+	<u>ALL STD.</u> CONO <small>(CRAB)</small> SOCKEYE SAME SIZE	

4. Effects of Aquaculture on Markets for Wild Fisheries

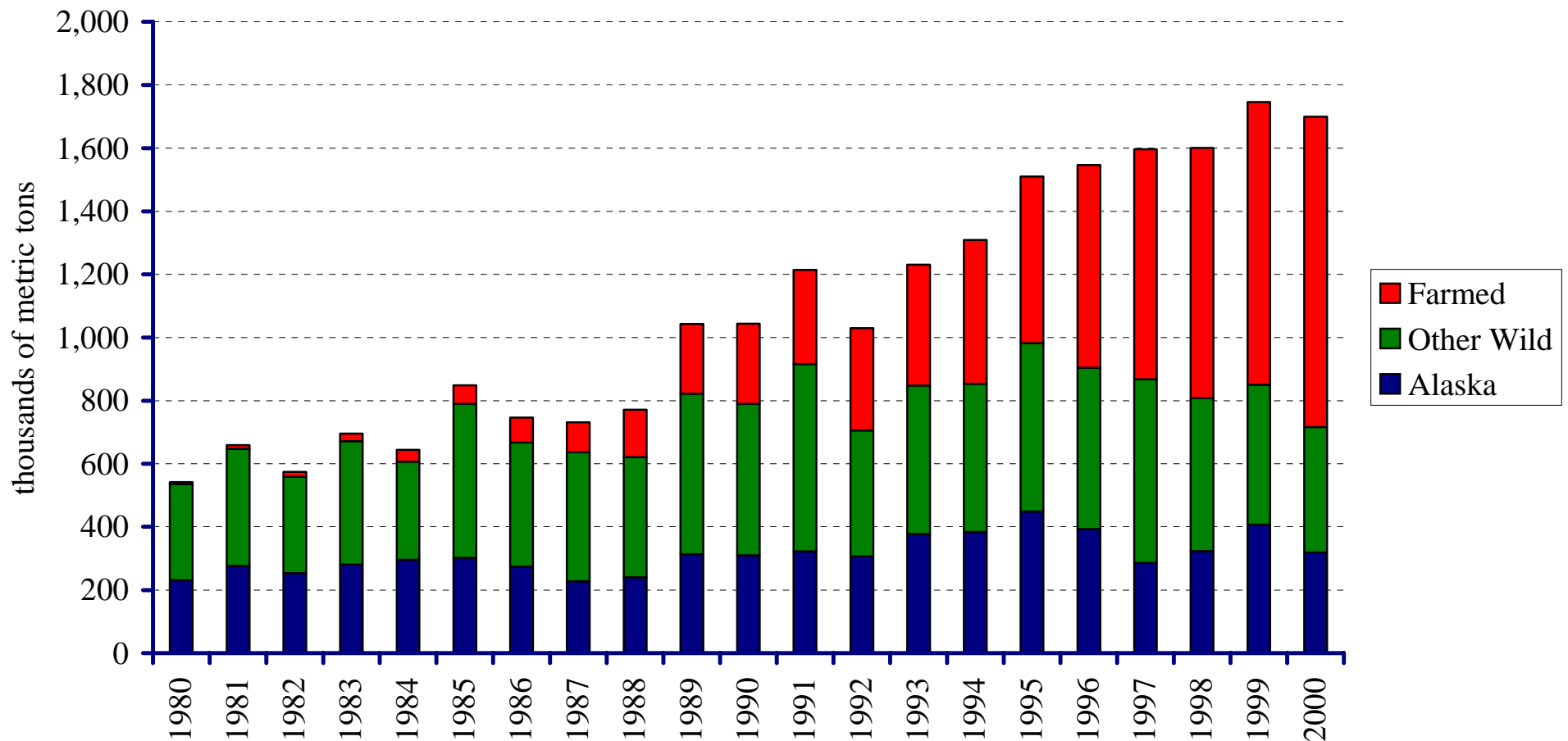


Aquaculture has far-reaching implications for markets for wild fisheries.

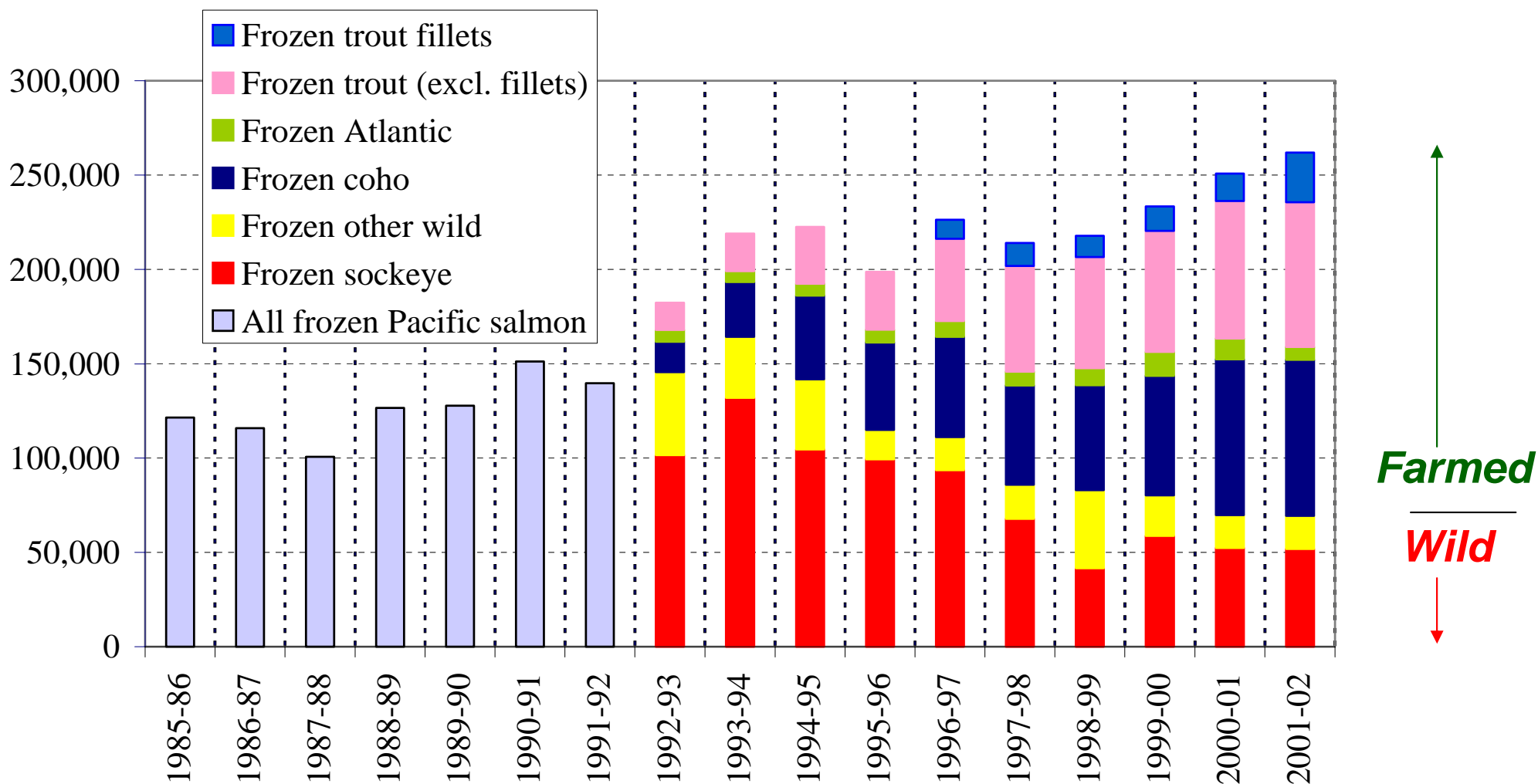
- Aquaculture expands total supply, putting downward pressure on prices for both wild and fish.
- Aquaculture creates new standards for quality, consistency and availability, putting downward pressure on prices for wild fish
- Aquaculture changes seafood market dynamics
- Aquaculture expands total demand for fish, which can help to raise prices for both wild and farmed fish.

In less than 20 years, Alaska's share of world salmon production fell from more than 40% to less than 20%.

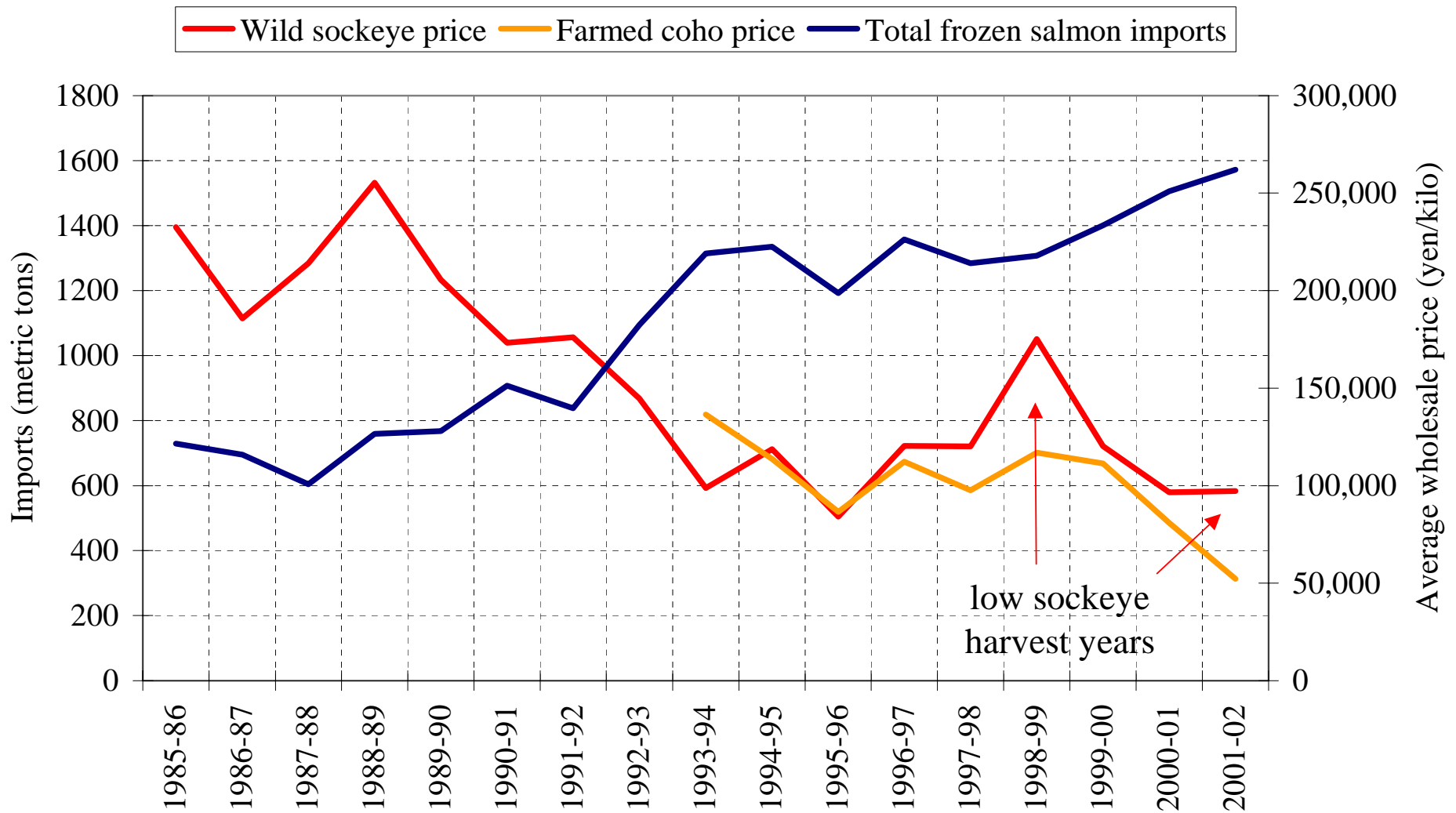
World Salmon Supply



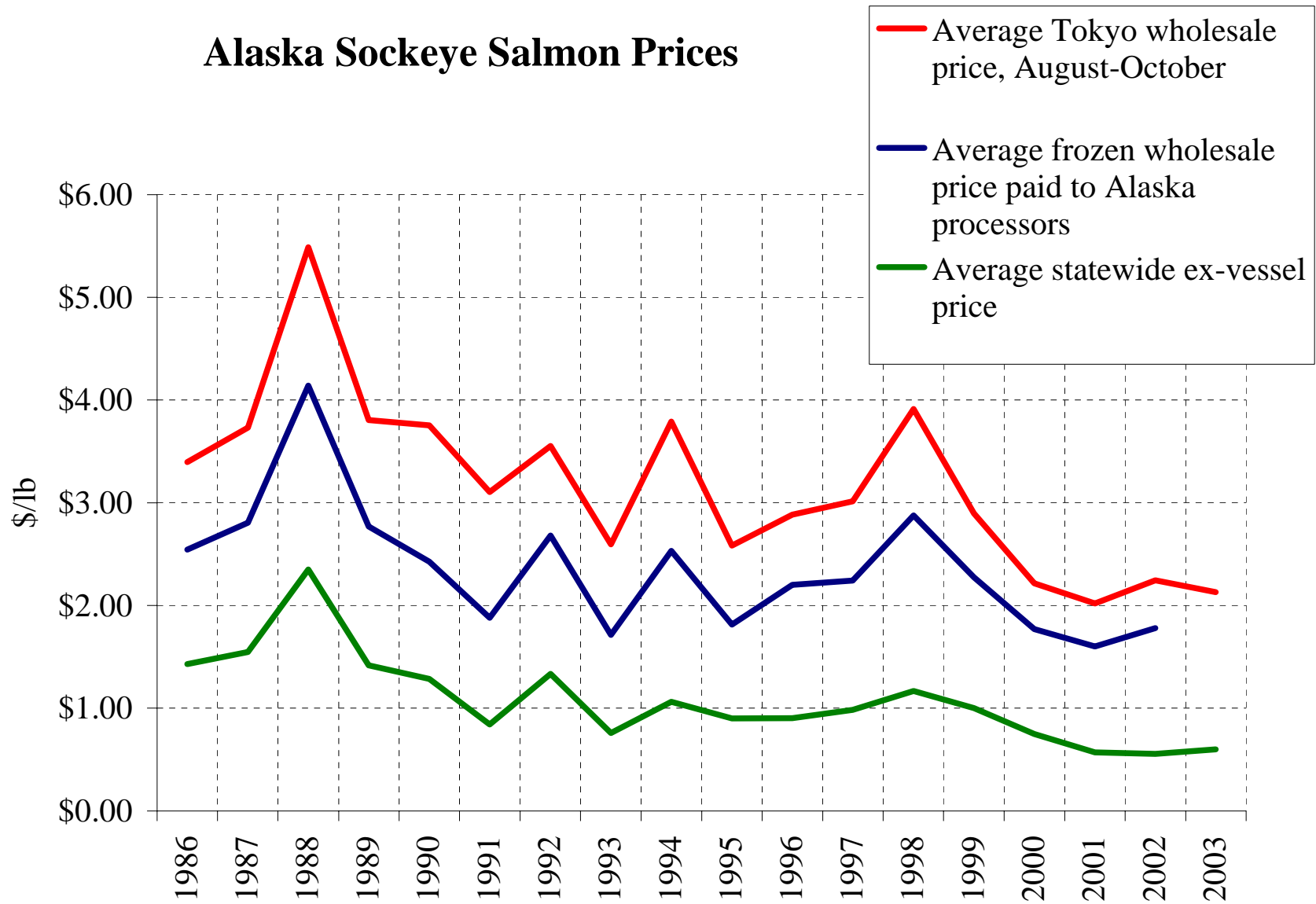
In ten years farmed salmon captured most of the Japanese frozen market formerly dominated by wild Alaska sockeye.



As total supply increased, Japanese wholesale prices for both farmed salmon and sockeye salmon fell dramatically.

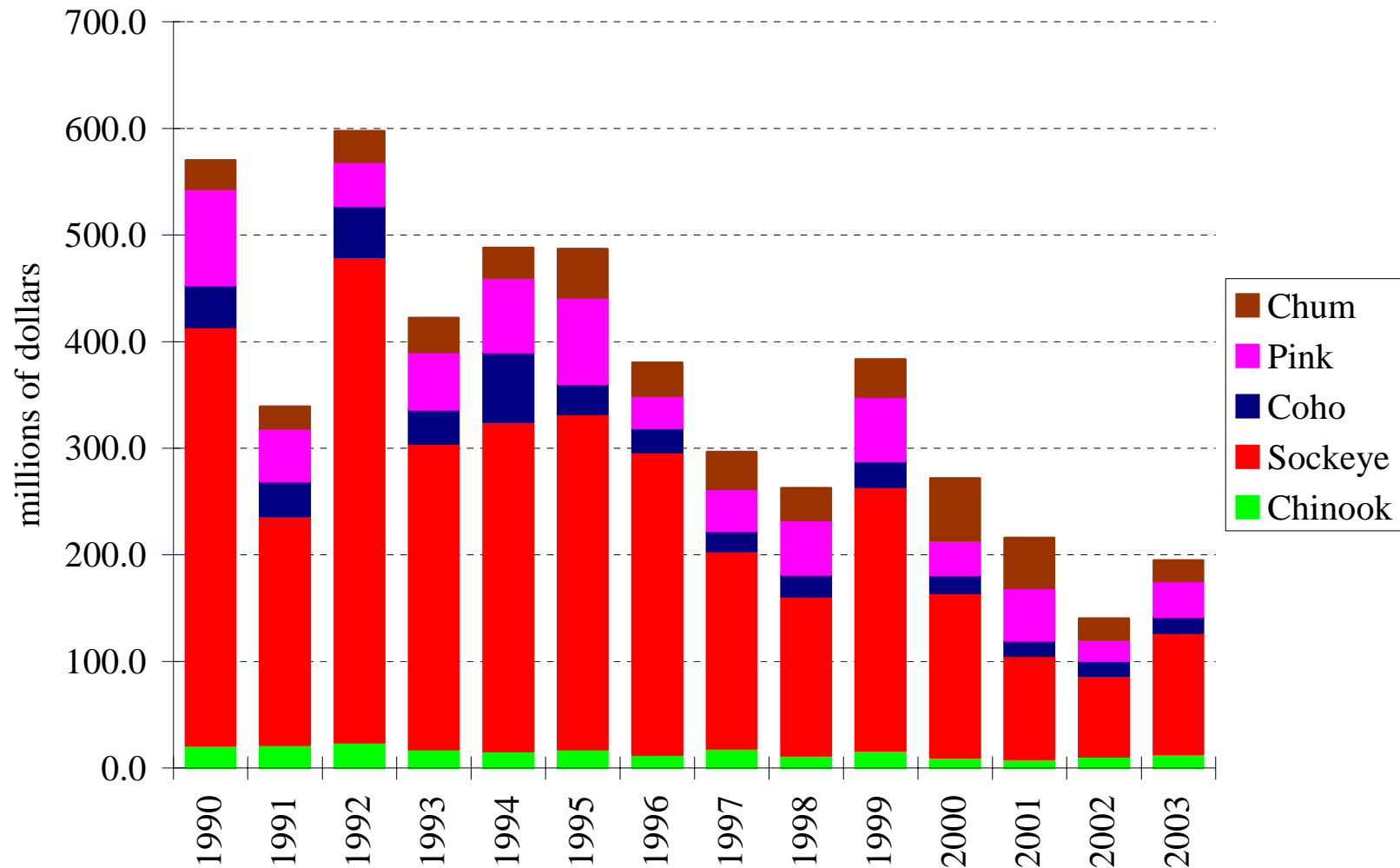


As Japanese wholesale prices declined, prices paid to Alaska processors and fishermen declined. Although the absolute price decline was about the same at all levels, the relative price decline was far greater for fishermen.



The decline in the price of sockeye salmon has been the largest factor in the dramatic decline in the value of the Alaska salmon harvest since 1990.

Alaska Salmon Harvest Value



The decline in Alaska sockeye salmon prices happened because of competition between farmed salmon and wild salmon in international markets.

- It was caused primarily by an increase in Japanese imports of Chilean farmed coho and Chilean and Norwegian farmed trout.
 - It was caused by aquaculture production in a foreign country which was exported to another foreign country.
- Banning fish farming in Alaska didn't keep it from happening.
- Imposing U.S. trade tariffs on Chilean salmon wouldn't have kept it from happening
- In an increasingly globalized economy, where we export much of what we produce and import much of what we consume, our wild fisheries are affected by aquaculture, wherever it is happening, and regardless of whether we encourage or discourage it in our region.

Aquaculture changes seafood market dynamics

- Over time, as farming costs fall, farmed production will expand and fish prices will trend downwards.
- As wild production becomes a smaller part of total supply, wild prices are less affected by wild supply
 - They don't rise as much when wild catches fall
 - They don't fall as much when wild catches rise
- Aquaculture creates price cycles similar to those for beef and pork

Although aquaculture has many negative effects
on markets for wild fish,
it also has a positive effect:

Aquaculture expands demand for fish.

- Aquaculture makes fish more widely available
 - Aquaculture creates new fish products
 - Aquaculture invests in marketing
 - Aquaculture creates new fish consumers
-
- The more people who eat fish, the more demand there will be for wild fish.
 - Once people start eating fish, some of them will want to eat wild fish because it is “natural” or because it is “wild” or because it tastes better.
 - This can only happen if wild fish is marketed effectively.

5. How Can Wild Fisheries Respond to Aquaculture?



How can wild fisheries respond to aquaculture?

1. Accept reality and responsibility
2. Get smart
3. Address self-inflicted challenges
4. Build on the advantages of wild fisheries
5. Work with aquaculture towards common goals

1. Accept reality and responsibility

- Aquaculture is not going to go away
- Globalization is not going to stop
- Change will not stop so that wild fisheries can stay the same
- Most of the world won't notice or care what happens to the people who make their living from wild fisheries
- Subsidies and “disaster” aid are not the road to a profitable fishery
- The people who depend on wild fisheries have the ultimate responsibility for their economic success
 - To figure out how to adjust to changing markets
 - To make those adjustments happen

2. Get smart.

- Building successful wild fisheries requires understanding our markets and how they are changing. We cannot afford to be ignorant.
- Everyone involved with wild fisheries has a responsibility to learn about seafood markets and seafood marketing, including
 - Fishermen and processors
 - Fishery managers
 - Politicians and bureaucrats
- Learning about markets and marketing requires:
 - Talking to buyers and understanding their needs
 - Learning about the competition
 - Learning about what kind of marketing has worked for other industries
- Learning about markets and marketing requires:
 - Visiting the countries where your products are sold
 - Visiting your competitors' countries and observing their operations
 - Attending trade shows and other places where marketing happens
- If you are not doing these things:
 - You are not doing your homework
 - A lot of what you assume about your fish and your markets may be wrong.

Our own experience and instincts are not necessarily a good basis for understanding markets or consumers. They may be very misleading.

- Wild fishermen are used to wild fish. They are not used to farmed fish. (Many have never even eaten farmed fish). Naturally, they like wild fish and prefer it to farmed fish.
- Many consumers are not used to wild fish. They may be more used to farmed fish. They do not necessarily like wild fish or prefer it to farmed fish.
- Wild fishermen know about wild fish. They know (and they care) about different salmon species and different salmon-producing regions.
- Many consumers do not know about wild fish. They don't necessarily know anything or care at all about different species or regions. They may not even know that there is a difference between wild and farmed fish.
- What do most of us know or care about the difference between Florida and California oranges?
- How many of us knew (or cared) whether the shrimp at last night's reception were wild or farmed?

3. Address self-inflicted challenges

- Costs that are higher than they need to be
- Quality that is lower than it could be
- Overproduction for some markets
- Lack of experimentation and innovation
- Constant political risk of changes in management and allocations.
- Long-standing and divisive internal conflicts
 - between processors and fishermen over prices
 - between gear groups and regions over allocations

Addressing these challenges may not be easy.

But making excuses won't help.

These challenges weren't caused by aquaculture or globalization.

We created them ourselves.

This fishery is
not focused
on keeping
costs low or
quality high.



Photograph by Bart Eaton



Catching salmon at a
Norwegian farm

← Salmon harvesting in Alaska is labor intensive. Traditional fishing methods and the race to catch fish as quickly as possible do not keep costs low or quality high.





Holding salmon
before processing in
Alaska

Photo by Bart Eaton

Holding salmon before
processing in Norway





Alaska wild salmon
handling tradition

Chilean farmed salmon
handling tradition





Dead wild salmon arriving
for processing in Alaska

Live farmed salmon arriving for
processing in Norway



Rationalization of wild fisheries management can help in addressing self-inflicted challenges.

- Wild fisheries which have rationalized--such as halibut, sablefish, and Bering Sea pollock, have experienced:
 - Better quality products
 - Products delivered to markets when demand is highest
 - New markets, expanded demand, and higher prices
 - More efficient utilization
 - Lower costs
- Countries which have rationalized fishery management, such as Iceland and New Zealand, are among the most successful wild fisheries producers.
 - Their fisheries are profitable
 - Their fisheries help support the other parts of their economies

4. Build on the advantages of wild fisheries . . .

- Potential for low costs

“If adequate stocks are available, fishing will always be more economic than farming” (John Goodlad, quoted yesterday by Courtney Hough)

“As the prominence of aquaculture, rights-based fishing, and ranching systems increases, fisheries that are valuable and remain in open access or similarly inefficient management systems will ultimately be forced to adopt improve management practices with strengthened property rights or be driven into minor niche markets or become uncompetitive and possibly driven out of commercial production.”

(James L. Anderson, “Aquaculture and the Future: Why Fisheries Economists Should Care.” Marine Resource Economics, Volume 17, Number 2, 2002).

Low cost will be an advantage for wild fisheries only if we manage our fisheries in ways that keep costs low.

4. Build on the advantages of wild fisheries . . .

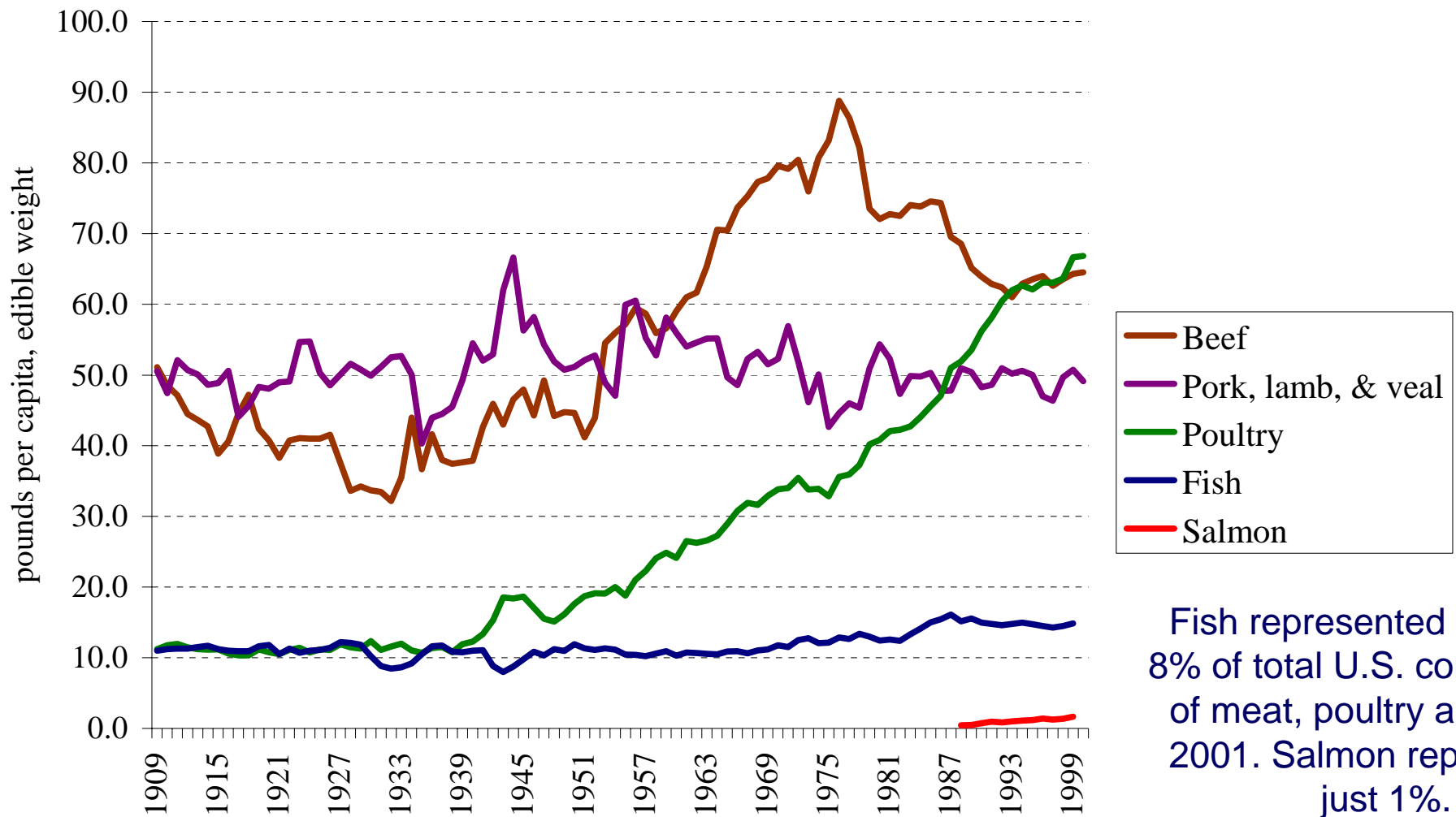
- Inherent quality and marketing advantages
 - Good taste
 - Wild
 - Natural
 - Unique
- To derive these advantages we need to:
 - understand what kinds of wild fish products the market wants and will pay a premium price for
 - use our high-quality wild fish to produce high quality wild products
 - meet the other needs of our markets such as reliable and consistent supply and traceability
 - market our products effectively
 - provide infrastructure to enable us to produce high-quality wild fish products and deliver them to markets
 - manage our fisheries in ways that allow us to do these things

5. Work with aquaculture towards common goals

- Increasing the number of seafood consumers
- Expanding the demand for fish
- Improving the infrastructure for fish processing and distribution
- Research on effects of fish farming
- Research on fish diseases
- Preserving the coastal environment

The biggest opportunity to increase demand for wild fish may be in getting consumers to eat more FISH. Getting the message to consumers to “eat seafood” is one area in which wild fisheries and aquaculture have a common interest and could collaborate.

U.S. Per Capita Consumption of Meat, Poultry and Fish



Source: USDA Economic Research Service.

Fish represented less than 8% of total U.S. consumption of meat, poultry and fish in 2001. Salmon represented just 1%.

An effective marketing strategy for wild seafood should be based on marketing at multiple levels. We need to get different kinds of messages to different consumers and buyers.

- Generic marketing of seafood: *“Eat seafood!”*
 - *For the consumer who doesn’t eat fish*
- Generic marketing of salmon: *“Eat salmon!”*
 - *For the consumer who eats fish but not salmon*
- Generic marketing of wild Alaska salmon: *“Eat wild Alaska salmon!”*
 - *For the consumer who eats salmon*
- Regional marketing: *“Eat wild Bristol Bay sockeye salmon!”*
 - *For the consumer who eats salmon*
- Marketing by individual producers: *“Eat Gunnar’s Wild Bristol Bay Smoked Sockeye Salmon!”*
 - *For the consumer who eats salmon*

Wild fisheries have a common interest with aquaculture in getting out two of these messages

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Attacking farmed fish—doing it ourselves or letting others do it—is a risky strategy for wild fish.

- Consumers are easily confused.

*If we say “**don’t eat farmed salmon**”*

*. . . they may hear “**don’t eat salmon.**”*

*If we say “**farmed salmon are dangerous**”*

*. . . they may hear “**salmon are dangerous.**”*

- Attacking farmed fish won’t help wild fish if we can’t supply wild fish to meet the needs of the market
 - When the market needs fish
 - In the product forms the market needs
- Attacking farmed fish keeps farmed fish from creating new fish consumers or increasing demand for fish
- Attacking farmed fish based on bad science is especially risky.
 - Wild fisheries are equally vulnerable to attacks based on bad science

This recent New York Times ad will not help wild salmon markets.



FARMED SALMON
are fed antibiotics,
colorants, and
pesticides.

Bon appétit.

THINK TWICE ABOUT EATING FARMED SALMON

Salmon raised on farms are very different from wild salmon. For starters, they're raised in floating feedlots that pollute the ocean. They're fed chemical additives to make their flesh pink like wild salmon's. Antibiotics and pesticides are used to control disease outbreaks on the farms. If that's not bad enough, farmed salmon contain disturbing levels of PCBs. Despite human health and environmental concerns, many restaurants and stores are still willing to sell farmed salmon to you—including some health and natural food stores you've come to trust. And that's enough to make anyone lose their appetite.

TELL THESE STORES TO STOP SELLING FARMED SALMON: VISIT www.FarmedAndDangerous.org

WHOLE FOODS	SAFEWAY	KROGER	TRADER JOE'S	ALBERTSONS	COSTCO
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*The ad ran on
October 31, 2003
and was paid for by
the Coastal Alliance
for Aquaculture
Reform.*

How will these consumers respond to these messages?
Are they based on a standard of scientific evidence we would want
applied to wild fisheries?
If these messages continue, how will the farmed industry respond?

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WHOLE FOODS

SAFEWAY

KROGER

TRADER JOE'S

ALBERTSONS

COSTCO

- “Farmed salmon are raised in floating feedlots that pollute the oceans.”
- “Farmed salmon contain disturbing levels of PCBs”
- “Despite human health and environmental concerns, many restaurants and stores are still willing to sell farmed salmon to you.”

Wild fisheries have a common interest with aquaculture in . . .

- Getting the message to consumers that fish are healthy and good for you
- Getting the message to consumers that fish taste good
- Keeping marketing messages positive rather than negative
- Emphasizing the importance of good science

Conclusions

- The global seafood industry is in a period of rapid and profound change which is affecting every part of the industry.
- The key causes of change are the growth of aquaculture and globalization of the world economy
- These changes are leading to increased pressure throughout the seafood industry to respond to market demands and increase efficiency.
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- To survive and prosper, people who depend on wild fisheries need to:
 - Accept reality and responsibility
 - Get smart
 - Address self-inflicted challenges
 - Build on the advantages of wild fisheries
 - Work with aquaculture towards common goals